FluWatch

Public Health Agency of Canada | Agence de la santé publique du Canada

June 30 to July 13, 2013 (Weeks 27 & 28)

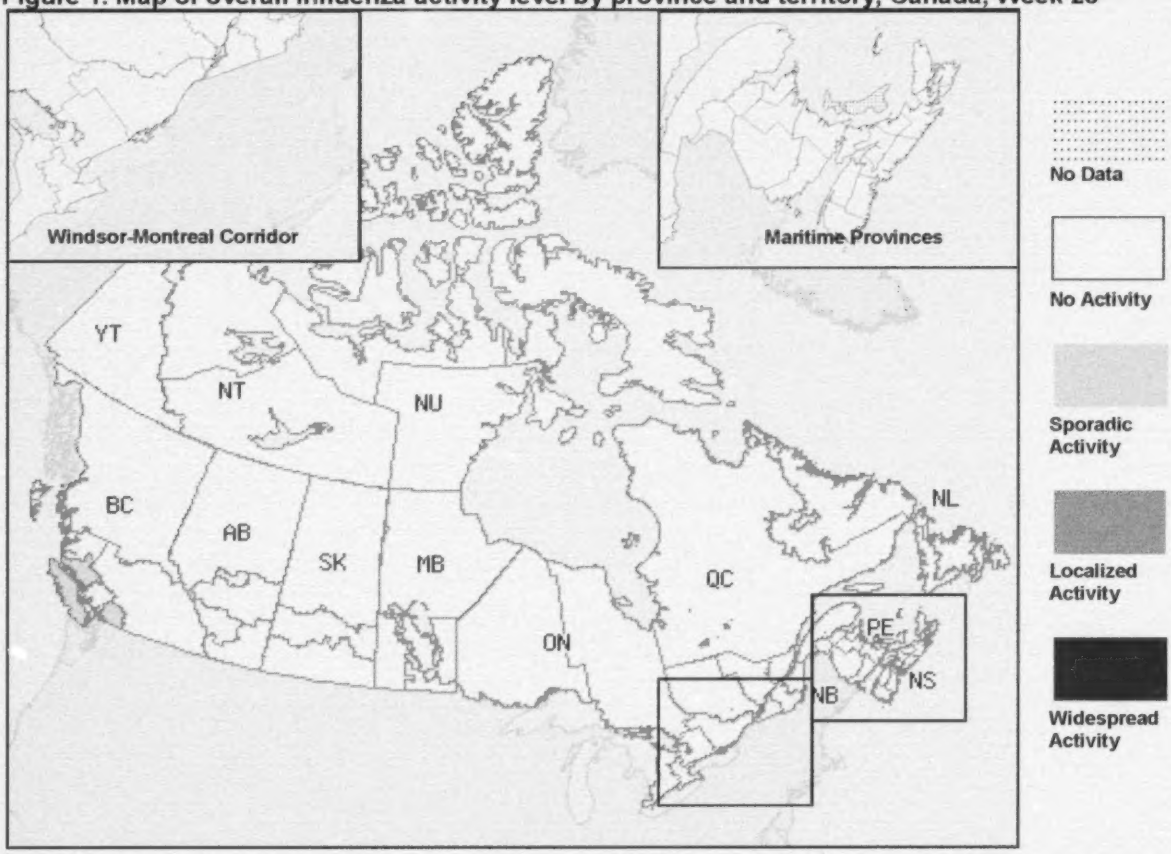
Overall Summary

- Influenza activity in Canada remained at inter-seasonal levels during this 2-week period.
- Detections of rhinovirus and parainfluenza declined. Detections of all other respiratory viruses were low. The percentage of laboratory tests positive for influenza was 0.6% in week 28.
- The ILI consultation rate has been fairly stable over the past 14 weeks, and has been above the expected range for the past 11 weeks.

Influenza Activity (geographic spread) and Outbreaks

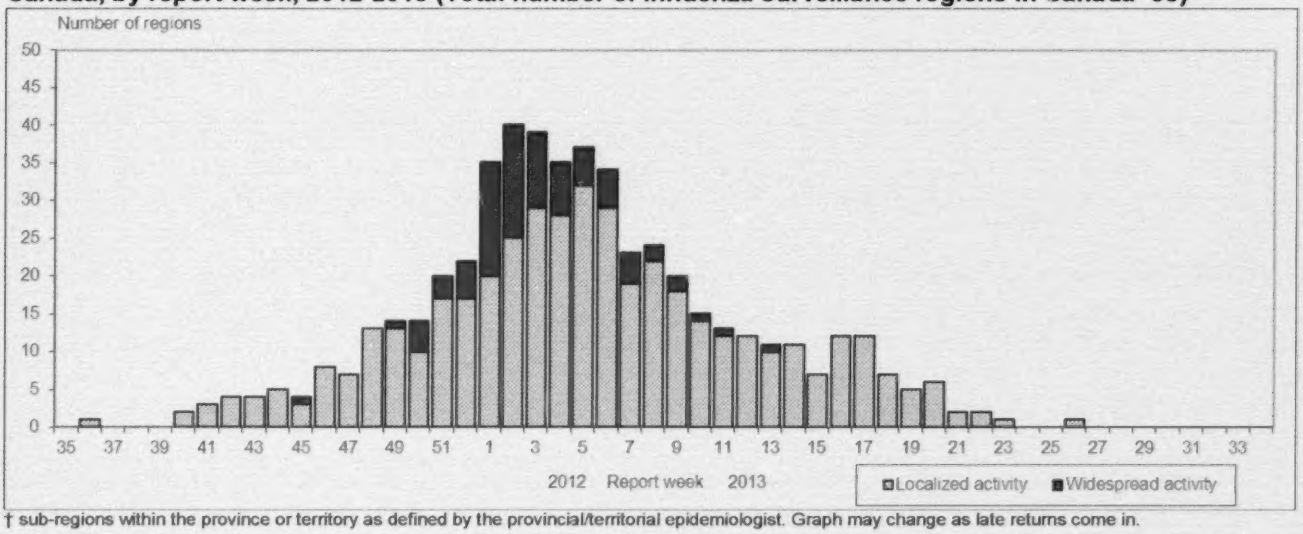
The number of regions reporting influenza activity was at inter-seasonal levels in weeks 27 and 28. No regions reported localized activity; in weeks 27 and 28, three and two regions reported sporadic activity, respectively (Figures 1 and 2). No new influenza outbreaks were reported in weeks 27 or 28 (Figure 3).

Figure 1. Map of overall Influenza activity level by province and territory, Canada, Week 28



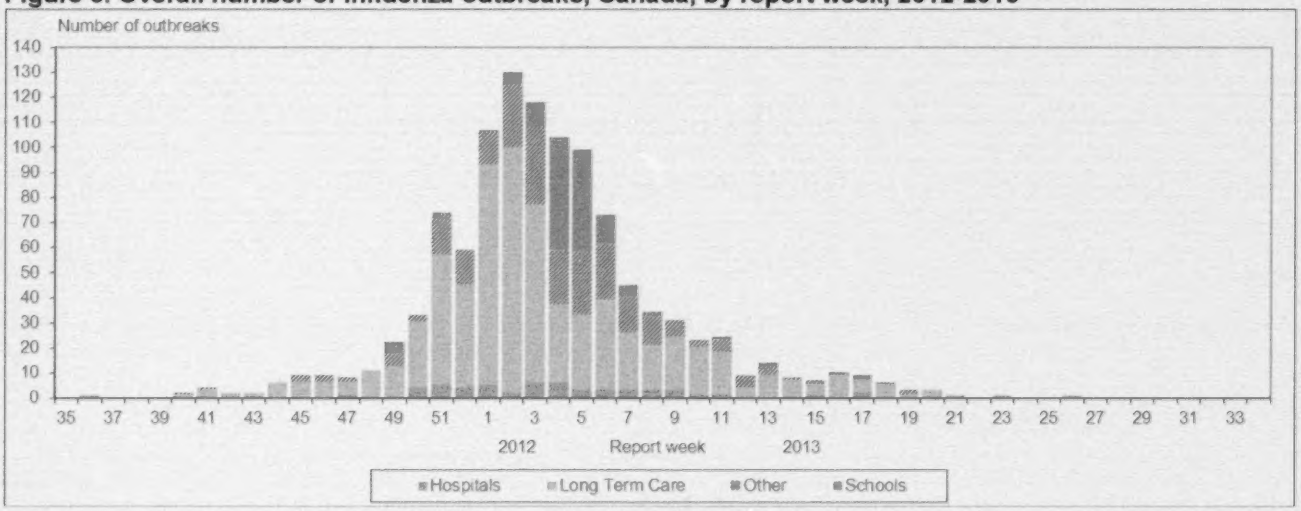
Note: Influenza activity levels, as represented on this map, are assigned and reported by Provincial and Territorial Ministries of Health, based on laboratory confirmations, sentinel ILI rates (see graphs and tables) and reported outbreaks. Please refer to detailed definitions on the last page. For areas where no data is reported, late reports from these provinces and territories will appear on the FluWatch website.

Figure 2. Number of influenza surveillance regions† reporting widespread or localized influenza activity, Canada, by report week, 2012-2013 (Total number of influenza surveillance regions in Canada=58)



† sub-regions within the province or territory as defined by the provincial/territorial epidemiologist. Graph may change as late returns come in.

Figure 3. Overall number of influenza outbreaks, Canada, by report week, 2012-2013



Influenza and Other Respiratory Virus Detections

The overall percentage of positive influenza tests was low and stable, at 0.7% in week 27 and 0.6% in week 28. Among the 17 influenza viruses detected in weeks 27 & 28, 16 were influenza A (Table 1). Cumulative influenza virus detections by type/subtype to date are as follows: 85.1% influenza A [34.7% A(H3), 4.7% A(H1N1)pdm09 and 60.5% A(unsubtyped)] and 14.9% influenza B (Table 1).

Detailed information on laboratory detections of influenza was received for 26,314 cases to date this season. Data on age and type/subtype was complete for 26,102 cases (Table 2). The proportion of cases by age group is as follows: 14.8% <5 years; 10.4% between 5-19 years; 16.3% between 20-44 years; 17.0% between 45-64 years of age; 41.5% ≥65 years.

The percentage of positive tests for rhinovirus decreased from its peak of 25.6% in week 26 to 21.1% in week 27 and to 17.5% in week 28. The percentage of positive tests for parainfluenza continued its overall downward trend observed since week 16, decreasing to 5.7% in week 27 and 5.4% in week 28. The percentage of positive tests for other respiratory viruses were low in week 28: human metapneumovirus (hMPV) (1.9%), respiratory syncytial virus (RSV) (0.5%), coronavirus (0%) and adenovirus (1.8%) (Figure 5)*.

* For more details, see the weekly Respiratory Virus Detections in Canada Report.

Table 1. Weekly and Cumulative numbers of positive influenza specimens by Provincial Laboratories, Canada, 2012-2013

Reporting provinces	Weekly (June 30 to July 13, 2013)						Cumulative (August 26, 2012 to July 13, 2013)					
	Influenza A					B	Influenza A					B
	A Total	A(H1)	A(H3)	Pand H1N1	A (UnS)*	Total	A Total	A(H1)	A(H3)	Pand H1N1	A (UnS)*	Total
BC	7	0	3	1	3	0	1930	0	1466	221	243	407
AB	0	0	0	0	0	0	2363	0	1771	448	144	843
SK	2	0	0	0	2	0	842	0	476	74	292	324
MB	1	0	0	0	1	0	660	0	79	10	571	114
ON	3	0	0	3	0	1	8288	0	3791	386	4111	953
QC	3	0	0	0	3	0	9820	0	546	36	9238	1939
NB	0	0	0	0	0	0	1872	0	771	75	1026	102
NS	0	0	0	0	0	0	388	0	165	8	215	9
PE	0	0	0	0	0	0	117	0	76	10	31	1
NL	0	0	0	0	0	0	718	0	240	2	476	20
Canada	**16**	**0**	**3**	**4**	**9**	**1**	**26998**	**0**	**9381**	**1270**	**16347**	**4712**

*Unsubtyped: The specimen was typed as influenza A, but no result for subtyping was available. Specimens from NT, YT, and NU are sent to reference laboratories in other provinces. Note: Weekly data is based on week of positive lab detection. Cumulative data includes updates to previous weeks; due to reporting delays, the sum of weekly report totals do not add up to cumulative totals.

Table 2. Weekly & Cumulative numbers of positive influenza specimens by age groups reported through case-based laboratory reporting, Canada, 2012-2013*

Age groups	Weekly (June 30 to July 13, 2013)					Cumulative (Aug. 26, 2012 to July 13, 2013)				
	Influenza A				B	Influenza A				B
	A Total	Pandemic H1N1	A/H3N2	A unsubtyped	Total	A Total	Pandemic H1N1	A/H3N2	A unsubtyped	Total
<5	1	0	0	1	0	3007	224	838	1945	852
5-19	1	0	0	1	0	1632	71	613	948	1080
20-44	2	1	0	1	0	3536	356	1221	1959	730
45-64	2	2	0	0	0	3727	329	1220	2178	702
65+	4	0	0	4	0	9995	136	3712	6147	841
Unknown	0	0	0	0	0	210	29	178	3	2
Total	**10**	**3**	**0**	**7**	**0**	**22107**	**1145**	**7782**	**13180**	**4207**

*Please note that this table reflects the number of specimens for which demographic information was reported. These represent a subset of all positive influenza cases reported. Delays in the reporting of data may cause data to change retrospectively.

Figure 4. Influenza tests reported and percentage of tests positive, Canada, by report week, 2012-2013

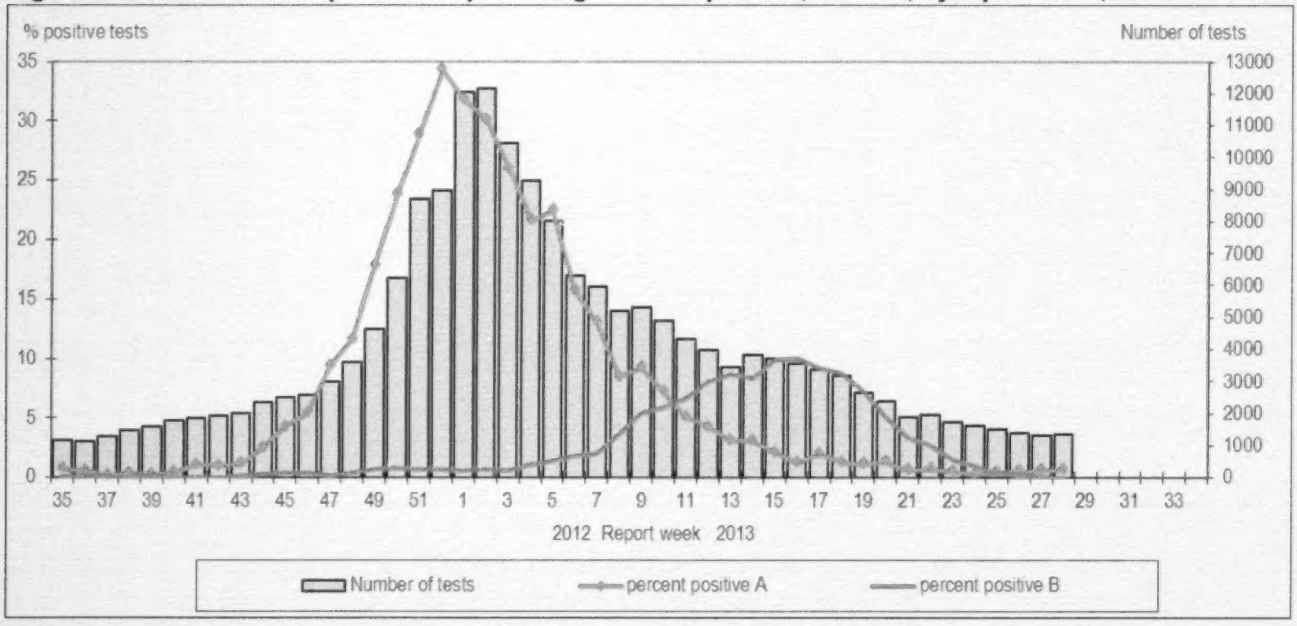
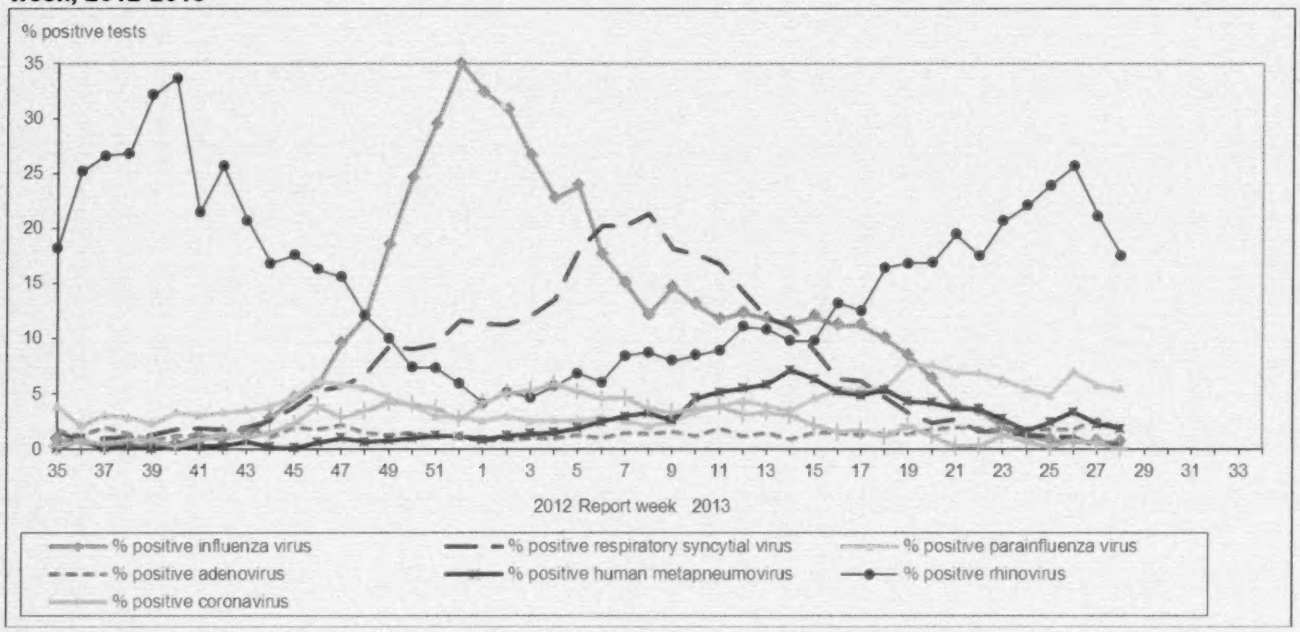


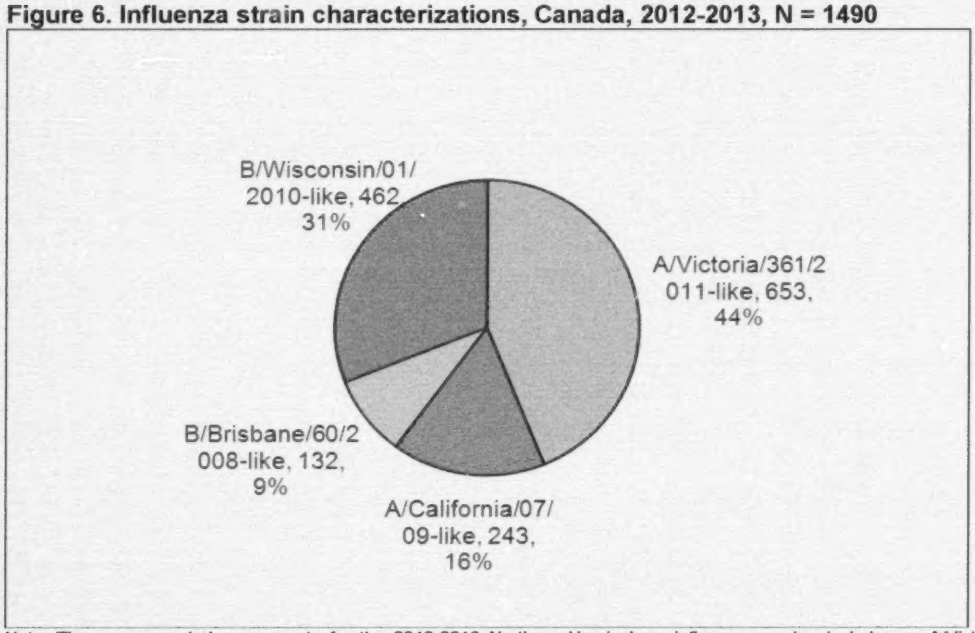
Figure 5. Percent positive influenza tests, compared to other respiratory viruses, Canada, by reporting week, 2012-2013



Influenza Strain Characterizations

During the 2012-13 season, the National Microbiology Laboratory (NML) has antigenically characterized 1490 influenza viruses. The 653 influenza A(H3N2) viruses were antigenically similar to the vaccine strain A/Victoria/361/2011 and the 243 A(H1N1)pdm09 viruses were antigenically similar to the vaccine strain A/California/07/09. Among the influenza B viruses, 462 were antigenically similar to the vaccine strain B/Wisconsin/01/2010 (Yamagata lineage) and 132 were similar to B/Brisbane/60/2008 (Victoria lineage; component of the 2011-2012 seasonal influenza vaccine) (Figure 6).

Figure 6. Influenza strain characterizations, Canada, 2012-2013, N = 1490



Note: The recommended components for the 2012-2013 Northern Hemisphere influenza vaccine include: an A/Victoria/361/2011 (H3N2)-like virus; an A/California/7/2009 (H1N1)pdm09-like virus; and a B/Wisconsin/1/2010-like virus.

Antiviral Resistance

During the 2012-13 season, NML has tested 1487 influenza viruses for resistance to oseltamivir, and 1484 influenza viruses for resistance to zanamivir. Among these, one A(H3N2) virus was resistant to oseltamivir and zanamivir, one A(H1N1)pdm09 virus was resistant to oseltamivir, and three influenza B virus samples were resistant to both oseltamivir and zanamivir. A total of 1334 influenza A viruses were tested for amantadine resistance and all but one A(H3N2) virus were resistant (Table 3).

Table 3. Antiviral resistance by influenza virus type and subtype, Canada, 2012-2013

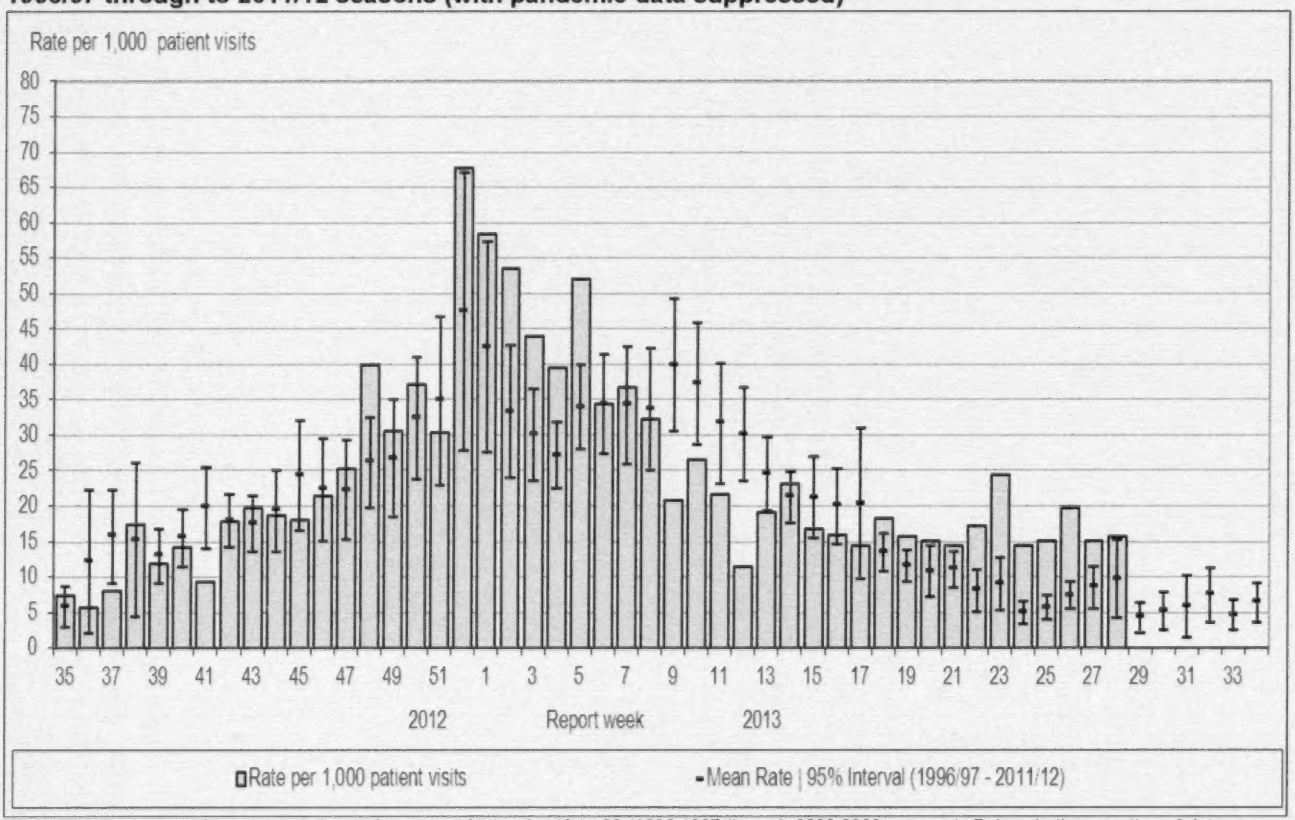
Virus type and subtype	Oseltamivir		Zanamivir		Amantadine	
	# tested	# resistant (%)	# tested	# resistant (%)	# tested	# resistant (%)
A (H3N2)	648	1 (0.2%)	648	1 (0.2%)	1044	1043 (99.9%)
A (H1N1)	250	1 (0.4%)	247	0	290	290 (100%)
B	589	3 (0.5%)	589	3 (0.5%)	NA*	NA*
TOTAL	1487	5 (0.3%)	1484	4 (0.3%)	1334	1333 (99.9%)

* NA – not applicable

Influenza-like Illness Consultation Rate

The national influenza-like-illness (ILI) consultation rate has been similar for the past 14 weeks, ranging from 14.3 to 24.4 ILI consultations per 1,000 patient visits, and was 15.6/1,000 in week 28. The rates observed in weeks 18 to 28 were above the expected range (Figure 7). The highest consultation rate was observed in children under 5 years of age in both weeks 27 (34.1/1,000 visits) and 28 (39.6/1,000 visits).

Figure 7. Influenza-like illness (ILI) consultation rates, Canada, by report week, 2012-2013 compared to 1996/97 through to 2011/12 seasons (with pandemic data suppressed)



Note: No data available for mean rate in previous years for weeks 19 to 39 (1996-1997 through 2002-2003 seasons). Delays in the reporting of data may cause data to change retrospectively.

Severe Respiratory Illness Surveillance

Paediatric Influenza Hospitalizations and Deaths (IMPACT)

In weeks 27 and 28, no laboratory-confirmed influenza-associated paediatric (≤16 years of age) hospitalizations, intensive care unit (ICU) admissions, or deaths were reported by the Immunization Monitoring Program Active (IMPACT) network.

Since the start of the 2012-13 season, a total of 885 influenza-associated paediatric hospitalizations have been reported by the IMPACT network: 622 (70.3%) with influenza A [of which 124 (19.9%) were A(H3N2), 29 (4.7 %) were A(H1N1)pdm09 and the remaining 469 were A(unsubtyped); and 263 (29.7%) with influenza B. The distribution of cases by age group is as follows: 163 (18.4%) <6 months of age; 203 (22.9%) age 6-23 months; 254 (28.7 %) age 2-4 years; 190 (21.5%) age 5-9 years; and 75 (8.5%) age 10-16 years. Of the 885 cases, 110 (12.4%) were admitted to the ICU. Of the 82 ICU admissions with available data, 68 (82.9%) cases had at least one underlying condition. One death has been reported to date this season in a child 6-23 months of age with an underlying condition, with influenza B.

Note: The number of hospitalizations reported through IMPACT represents a subset of all influenza-associated paediatric hospitalizations in Canada. Delays in the reporting of data may cause data to change retrospectively.

Adult Influenza Hospitalizations and Deaths (PCIRN)

Active surveillance of laboratory-confirmed influenza-associated adult (≥16 years of age) hospitalizations reported by the PHAC/CIHR Influenza Research Network (PCIRN) Serious Outcomes Surveillance (SOS) network concluded for the 2012-13 influenza season on April 30th, 2013. However, the PCIRN-SOS network continues to report limited data on laboratory-confirmed cases of influenza identified through passive surveillance at 15 out of 17 hospital sites. In week 27, one hospitalization was reported in an adult 20-44 years of age with influenza A(H1N1)pdm09. No hospitalizations, ICU admissions or deaths were reported in week 28.

The cumulative data for the season to date includes data from active surveillance from November 4, 2012 to April 30, 2013 and data from passive surveillance since May 1, 2013. The cumulative number of cases is 1,810: 1,625 (89.8%) with influenza A [of which 312 were A(H3N2), 21 were A(H1N1)pdm09, and 1,292 were A(unsubtyped)]; 139 (7.7%) with influenza B, and the type has not been reported for 46 cases. The age distribution of hospitalizations is as follows: 1,230 (68.0%) were ≥65 years of age, 373 (20.6%) were 45-64 years, 195 (10.7%) were 20-44 years, and 12 (0.7%) were <20 years of age. ICU admission was required for 216 hospitalizations; the majority of which were adults ≥65 years of age (123; 56.9%). A total of 116 deaths have been reported: 26 with influenza A(H3N2), one with A(H1N1)pdm09, 82 with A(unsubtyped), 6 with influenza B, and one untyped. More than 85% of the deaths (99/116) were in adults ≥65 years of age, 14 (12.1%) were adults 45-64 years of age, and 3 (2.6%) were 20-44 years of age.

Note: The number of hospitalizations reported through PCIRN represents a subset of all influenza-associated adult hospitalizations in Canada. Delays in the reporting of data may cause data to change retrospectively.

Provincial/Territorial Influenza Hospitalizations and Deaths (Aggregate Surveillance System)

In weeks 27 and 28, four laboratory-confirmed influenza-associated hospitalizations were reported from participating provinces and territories*. The majority of cases were influenza A (75.0%). One hospitalization was reported in an adult ≥65 years of age, two 45-64 years of age, and one child 0-4 years of age. There were no ICU admissions reported. One death was reported in an adult aged 45-64 years with influenza A.

To date this season, 5,056 influenza-associated hospitalizations have been reported, of which 86.4% have been influenza A. Of those subtyped (49.3%), influenza A(H3) was the predominant influenza strain. Age information was available for 5,053 cases, and the age distribution is as follows: 2,657 (52.6%) were ≥65 years of age; 840 (16.6%) were 45-64 years of age; 452 (8.9%) were 20-44 years of age; 41 (0.8%) were 15-19 years of age; 275 (5.4%) were 5-14 years; and 788 (15.6%) were 0-4 years of age. Of the 1,401 cases with available data, there have been 222 hospitalisations for which admission to an ICU was required; the highest proportions have been in adults ≥65 years of age, followed by adults 45-64 years of age (36.0% and 33.8%, respectively). To date, 315 deaths have been reported: 258 adults ≥65 years of age, 37 adults 45-64 years; 12 adults 20-44 years, one child 5-14 years of age, and seven children 0-4 years of age. It is important to note that the cause of death does not have to be attributable to influenza, a positive laboratory test is sufficient for reporting. Detailed clinical information (e.g. underlying medical conditions) is not known for these cases.

Note*: The number of new influenza-associated hospitalizations and deaths reported by the Aggregate Surveillance System each week may be overestimated, as it may include retrospective updates to data from Ontario for previous weeks. These data may also include cases reported by the IMPACT and PCIRN networks. Influenza-associated hospitalizations are not reported to PHAC by the following Provinces and Territory: BC, NU, QC, NS, and NB. Only hospitalizations that require intensive medical care are reported by Saskatchewan. ICU admissions are not reported in Ontario.

International Influenza Updates

Northern Hemisphere

Influenza activity in temperate regions of the northern hemisphere was at inter-seasonal levels in weeks 26 and 27.
World Health Organization influenza update
Centers for Disease Control and Prevention seasonal influenza report
EuroFlu weekly electronic bulletin

Tropical Regions

Asia & Africa: Influenza activity decreased in most countries in tropical Asia, however, Sri Lanka and Viet Nam reported continued circulation of influenza A. Most countries in central Africa reported low influenza activity. The exceptions were Cameroon, Cote d'Ivoire reporting co-circulation of influenza A(H1N1)pdm09 and B. Influenza activity in Madagascar is beginning to decrease although the percentage of specimens positive remains high at 43%.

Carribean, Central America & tropical South America: Influenza activity remained low in most countries of the Carribean and Central America; however, Cuba and the Dominican Republic reported continued circulation of A(H1N1)pdm09 since late April. In week 27, Costa Rica reported increased circulation of A(H1N1)pdm09; A(H3N2) in El Salvador and both A(H1N1)pdm09 and A(H3N2) in Nicaragua. In many Andean countries of South America, RSV continued to dominate. A(H1N1)pdm09 continued to circulate in Colombia and Venezuela, the latter reporting ARI activity above the threshold for this time of year but both ARI and pneumonia notifications showed a decreasing trend in week 26. Columbia reported a slowly declining trend in the proportion of Severe Acute Respiratory Infection (SARI) hospitalizations and ICU admissions over weeks 24-27. Among laboratory detections, 18% of specimens in weeks 25-26 were positive for influenza. In Bolivia, influenza A continued to circulate around La Paz, and influenza B in Santa Cruz.

World Health Organization influenza update
PAHO Influenza Situation Report

Southern Hemisphere

Influenza activity continues in South America and South Africa, but remains low in Oceania.

South America – Southern Cone: RSV continued to be the predominant virus circulating but increasing co-circulation of influenza A(H1N1)pdm09 and A(H3N2) was reported in week 27. In Argentina, ILI and SARI activity were above the epidemic threshold. In 2013 (to week 27), 97.2% of influenza detections were influenza A and of these 56.9% A(H1N1)pdm09. In Chile, the national ILI consultation rate increased and was at or above the epidemic threshold level in recent weeks. Brazil reported increasing trends of ILI and SARI cases with continued co-circulation of influenza A(H1N1)pdm09 and influenza B. Laboratory detections of influenza in Brazil seem to have peaked in week 24.

South Africa: Circulation of A(H1N1)pdm09 has been reported since the end of April 2013. The number of laboratory detections seems to have peaked in week 23, although the percentage of positive tests for influenza among ILI specimens collected by sentinel sites was >60% in weeks 25-27.
South Africa Influenza surveillance report

Australia & New Zealand: Consultation rates for ILI were below the baseline level, with few specimens positive for influenza in weeks 27-28. Australia reports that the influenza season has not yet started, with influenza activity relatively stable between 8-21 June. In this period, 60% of typed influenza detections were influenza A. In 2012 A(H1N1)pdm09 represented <1% of influenza detections; however, to date in 2013 >9% of influenza detections have been A(H1N1)pdm09 (although the majority of influenza A have not been subtyped). In New Zealand, the number of influenza viruses detected has been increasing slowly in recent weeks with a mixture of influenza A and B reported.
New Zealand Public Health Surveillance
Australia Influenza Report

World Health Organization influenza update
PAHO Influenza Situation Report
WHO FluNet

Emerging Respiratory Pathogens

Human Avian Influenza

Influenza A(H7N9): No new cases of human infection with avian influenza A(H7N9) were reported by the World Health Organization (WHO) since 4 July 2013. Since March 2013, 133 laboratory-confirmed cases, with 43 deaths, of human infection with avian influenza A(H7N9) have been reported from eight provinces and two municipalities in eastern China.

PHAC – Avian influenza A(H7N9)
WHO – Avian Influenza A(H7N9)

Human Swine Influenza

Influenza A(H3N2)v: The CDC reported eight additional cases of human infection with variant influenza A(H3N2)v in Indiana in week 27. No cases were reported in week 28. Since June 2013, 12 cases of human infection with variant influenza A(H3N2)v have been reported in the United States.

Centers for Disease Control and Prevention Influenza A(H3N2) Variant Virus

Middle East Respiratory Syndrome Coronavirus (MERS-CoV)

Since 4 July 2013, WHO has reported eleven additional cases in Saudi Arabia and the United Arab Emirates (UAE), with five deaths in previously confirmed cases. The six cases in Saudi Arabia include a 69 year old male and two 66 year old males, all with comorbidities, who were admitted to hospital; a 56 year old female health care worker who recovered and subsequently returned to work; and two contacts of a previously confirmed case, including a 26 year old male family member and a 42 year old female health care worker. Both contacts had mild illness and no comorbidities. A health care cluster was reported in the UAE and included an 82 year old male with an underlying medical condition who was admitted to hospital, and four health care workers who were in contact with the index case. Three of the five deaths reported occurred in previously confirmed cases in Saudi Arabia. Of the remaining two deaths, one is a Qatari national who was receiving treatment in the United Kingdom since 11 September 2012. He was the second identified human infection with MERS-CoV globally. The other death is a 2 year old male with underlying lung disease from Saudi Arabia, and is the first paediatric death reported. Since April 2012, 88 laboratory-confirmed cases and one probable case of human infection with MERS-CoV have been reported, with 45 deaths. Most patients are male (63%; 53 of 84 cases) and range in age from 2 to 94 years (median 50 years).

PHAC – Middle East respiratory syndrome coronavirus (MERS-CoV)
WHO – Coronavirus infections

FluWatch reports include data and information from the following sources: laboratory reports of positive influenza tests in Canada (National Microbiology Laboratory), sentinel physician reporting of influenza-like illness (ILI), provincial/territorial assessment of influenza activity based on various indicators, including laboratory surveillance, ILI reporting, and outbreaks, influenza-associated paediatric and adult hospitalizations, antiviral sales in Canada, and WHO and other international reports of influenza activity.

Abbreviations: Newfoundland/Labrador (NL), Prince Edward Island (PE), New Brunswick (NB), Nova Scotia (NS), Quebec (QC), Ontario (ON), Manitoba (MB), Saskatchewan (SK), Alberta (AB), British Columbia (BC), Yukon (YT), Northwest Territories (NT), Nunavut (NU).

ILI definition for the 2012-2013 season

ILI in the general population: Acute onset of respiratory illness with fever and cough and with one or more of the following - sore throat, arthralgia, myalgia, or prostration which is likely due to influenza. In children under 5, gastrointestinal symptoms may also be present. In patients under 5 or 65 and older, fever may not be prominent.

Definitions of ILI/Influenza outbreaks for the 2012-2013 season

Schools: Greater than 10% absenteeism (or absenteeism that is higher (e.g. >5-10%) than expected level as determined by school or public health authority) which is likely due to ILI. Note: it is recommended that ILI school outbreaks be laboratory confirmed at the beginning of influenza season as it may be the first indication of community transmission in an area.

Hospitals and residential institutions: two or more cases of ILI within a seven-day period, including at least one laboratory confirmed case. Institutional outbreaks should be reported within 24 hours of identification. Residential institutions include but not limited to long-term care facilities (LTCF) and prisons.

Workplace: Greater than 10% absenteeism on any day which is most likely due to ILI.

Other settings: two or more cases of ILI within a seven-day period, including at least one laboratory confirmed case; i.e. closed communities.

Influenza Activity Levels Definition for the 2012-2013 season

Influenza Regional Activity levels are defined as:

1 = No activity: no laboratory-confirmed influenza detections in the reporting week, however, sporadically occurring ILI may be reported

2 = Sporadic: sporadically occurring ILI and lab confirmed influenza detection(s) with **no outbreaks** detected within the influenza surveillance region†

3 = Localized: (1) evidence of increased ILI* and
(2) lab confirmed influenza detection(s) together with
(3) **outbreaks** in schools, hospitals, residential institutions and/or other types of facilities occurring in **less than 50% of the influenza surveillance region†**

4 = Widespread: (1) evidence of increased ILI* and
(2) lab confirmed influenza detection(s) together with
(3) **outbreaks** in schools, hospitals, residential institutions and/or other types of facilities occurring **in greater than or equal to 50% of the influenza surveillance region†**

Note: ILI data may be reported through sentinel physicians, emergency room visits or health line telephone calls.

* More than just sporadic as determined by the provincial/territorial epidemiologist.

† Influenza surveillance regions within the province or territory as defined by the provincial/territorial epidemiologist.

We would like to thank all the Fluwatch surveillance partners who are participating in this year's influenza surveillance program.

This report is available on the Public Health Agency website at the following address: http://www.phac-aspc.gc.ca/fluwatch/index.html. Ce rapport est disponible dans les deux langues officielles.